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VIEWS, NEWS AND INTERVIEWS.

This newsy paragraph, which is important, if true, appeared in a Pennsylvania local paper:

As soon as the building is completed the machinery for the electric light station will be placed in position.

A Western daily paper informs us that the word "electricity" is derived from the Greek word *election*.

Factories at Sioux City, Ia., have commenced mixing corn with coal for fuel. At Eldora, Ia., the effect of the coal strike is strongly felt. Unless a supply of coal is secured in a few days the tile works, electric light plant and other factories will have to shut down.

Postmaster-General Bissell takes direct issue with his predecessor in regard to a postal telegraph. This was one of Mr. Wanamaker's pet reforms, but Mr. Bissell believes that the incorporation of the postal telegraph with the mail service of the country "would add enormously to the annual deficit, without correspondingly advancing the interests of the public." There is a bill pending in Congress providing for a government postal telegraph, and this is the way it is viewed at the Post Office Department.

At New Haven, Conn., on June 5, the big four-masted schooner "General E. S. Greeley" was successfully launched. She cost $65,000, is 200 feet long, 45 feet beam, and draws 20 feet of water when carrying 2,020 tons of coal. General Greeley, for whom the ship is named, is one of her owners and is also the pioneer electrical supply man of the United States.

The *Central News*, of London, now receives its important news from Paris *via* long-distance telephone.

A man in Birmingham, England, says that he once saw a crow's nest of iron wire (probably telegraph wire) in an old tree at the Cossipore Ordnance Factory, Calcutta. Last year he also observed an Indian crow drop a crumpled piece of iron wire, 23½ inches long (35½ when stretched even) and of No. 11 Birmingham wire gauge. It weighed nearly 861 grains. The bird was not far from the old nest found in the tree. Indian crows are well known to pilfer scraps of telegraph wire for building their nests.

It is reported that the Canadian Pacific Railway proposes to use electricity for moving its trains over the Rocky Mountain division of the line. The method, it is said, is to be tried first at Kicking Horse Pass, where there is ample water power.

A German police regulation is said to read as follows: "From the beginning of darkness every vehicle must have a lighted lantern. Darkness begins when the street lamps are lighted."

The chemical and standard testing departments of the General Electric Company have been removed from Lynn, Mass., to Schenectady, N. Y.

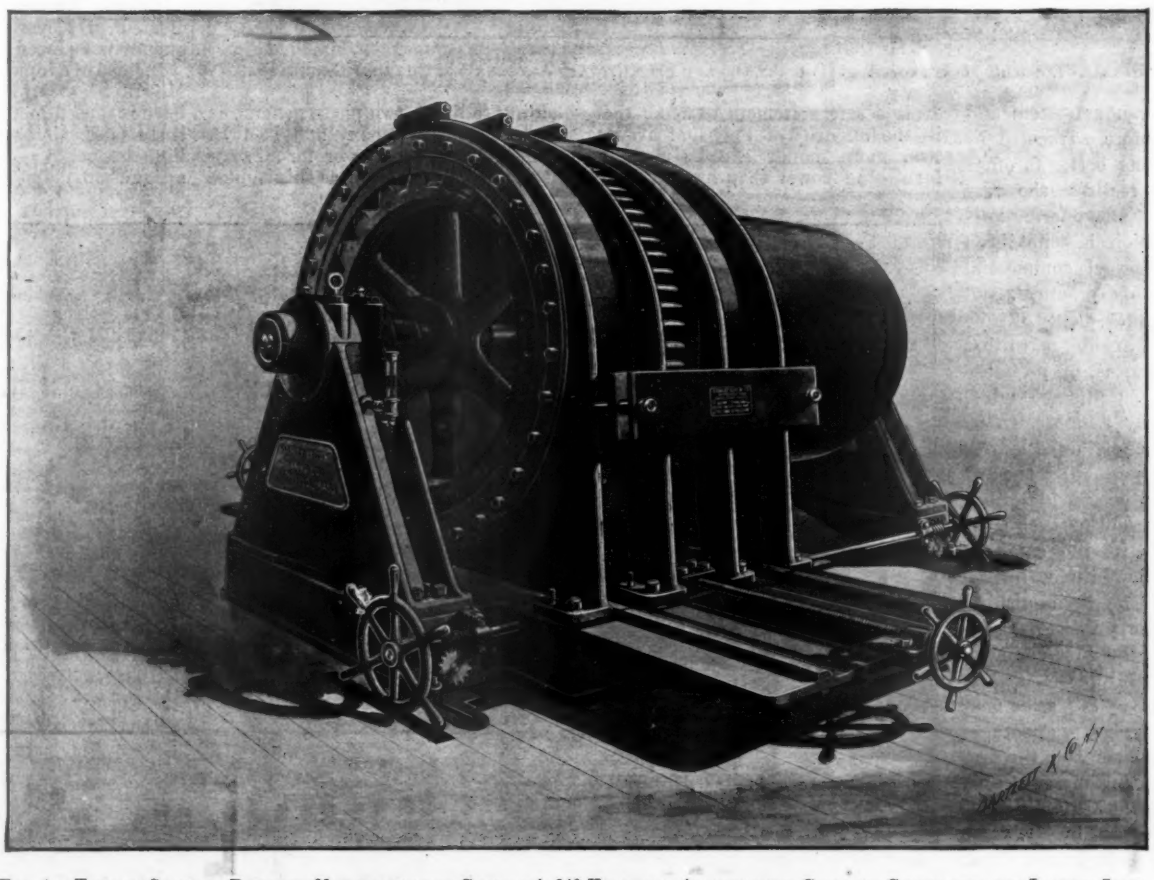


FIG 1.—TYPE OF STANLEY ELECTRIC MANUFACTURING COMPANY'S 240 KILOWATT ALTERNATING CURRENT GENERATOR AND LARGER SIZES.

THE STANLEY ELECTRIC MANUFACTURING COMPANY'S NEW ALTERNATING CURRENT SYSTEM.

DISTRIBUTION OF LIGHT AND POWER BY ALTERNATING CURRENTS FROM THE SAME GENERATOR AND CIRCUIT.

For three years past the Stanley Electric Manufacturing Company, of Pittsfield, Mass., has been engaged in perfecting apparatus with these objects in view:

First. To produce a system which would permit of economical and satisfactory service of light and power from the same alternating current generator and circuit, and at the same time, a system of such a character that existing lighting companies could operate it in connection with their present apparatus without necessitating the discarding of generators, transformers, etc., which represent a large investment.

Second. To produce a system which would make it possible for those just starting in the business to equip a station with one class of apparatus for all purposes, so as to avoid the multiplication of apparatus and circuits necessary in the past where it has been desirable to furnish incandescent lights, arc lights and power.

Third. To make possible the commercial transmission of the energy of water powers over long distances and

its distribution for lighting and power purposes by a simple system not requiring the many conversions and consequent wastefulness, and the duplication of apparatus made necessary by the synchronous system and other plans heretofore advocated by those having nothing better to offer.

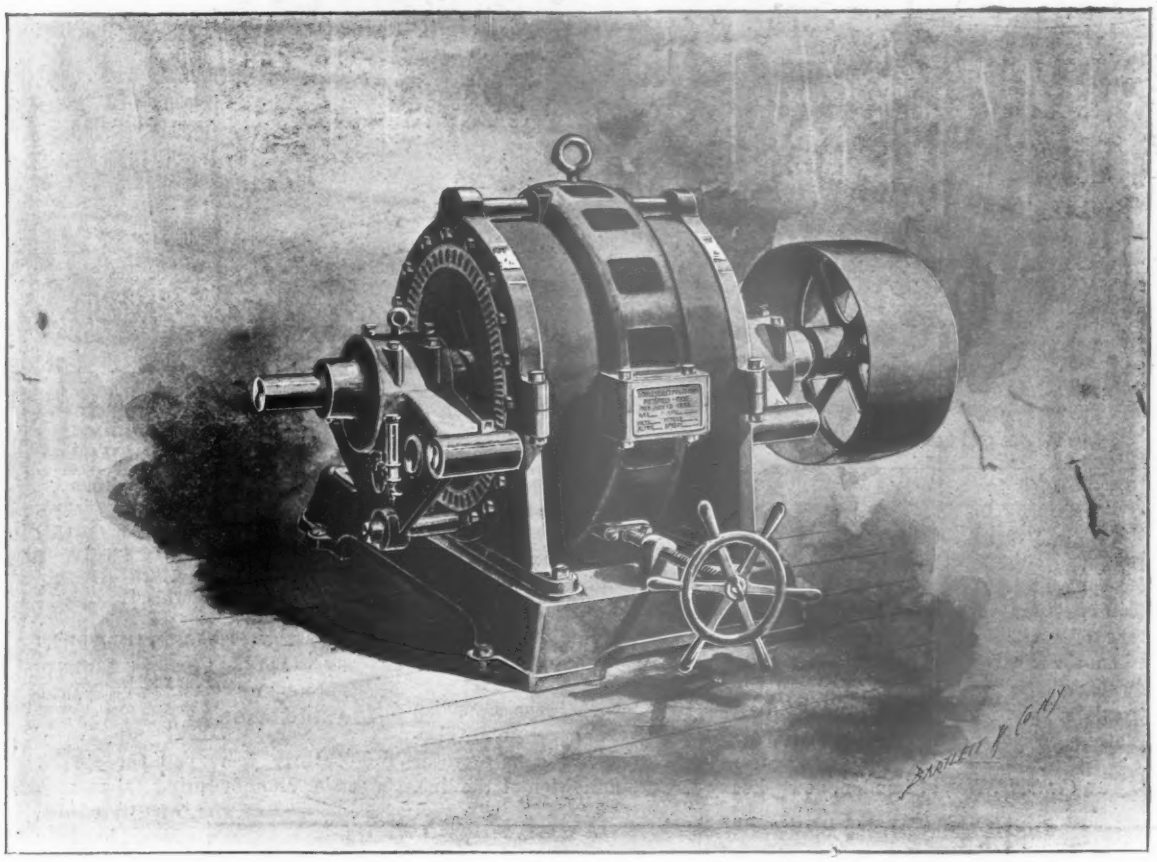


FIG. 2.—TYPE OF STANLEY ELECTRIC MANUFACTURING COMPANY'S 60 AND 120 KILOWATT ALTERNATING CURRENT GENERATOR.

This company realizes the very great importance of not offering anything for sale which has not been demonstrated, by actual commercial use, to be thoroughly practical, and consequently has taken plenty of time to perfect this new apparatus, so that what it now offers is in no sense experimental. Mr. William Stanley, Mr. John F. Kelly and Mr. C. C. Chesney have all contributed largely to inventing and perfecting the machinery and appliances described herewith, and so closely has their labor been intertwined that the company has adopted the three initials "S. K. C." as the distinguishing mark of these various devices. It is but natural that the first complete and practical multiphase system should be produced by the same men who devised the necessary apparatus and put into actual operation the first single phase alternating current transformer system in the United States which was accomplished by Mr. Stanley and his associates in 1886 at Great Barrington, Mass.

The one great disadvantage of the alternating current system of distribution for lighting purposes has been the fact that power service could not be furnished by it. The ideal central station should have but one type of dynamos, all uniform in size and interchangeable throughout, which deliver current into circuits from which any kind of service, incandescent lighting, arc lighting or power can be furnished indiscriminately. The very great flexibility and simplicity of distribution of lights by the alternating current transformer system is undisputed by all practical and intelligent station managers, and given a good motor this system is fully as advantageous for power distribution as for lighting. It is a safe statement to make that, in the majority of towns of average size, more money can be made by furnishing power than light. Power from two phase alternating current motors, such as the Stanley Electric Manufacturing Company is ready to furnish, is ideal in its simplicity and convenience of operation. The commutator, that principal source of trouble on direct current motors, being removed, there is nothing to cause trouble. Any station may increase its present equipment by adding to it the two phase generators made by this company and be in a position to supply power for all sorts of purposes. As soon as this is done and a day circuit established there will not only be a demand for power, but doubtless many people will use light in the daytime who did not use it before, simply because they could not get it.

The two phase generators this company offers are claimed to be fully as good and as simple for lighting purposes as single phase machines. They can be used interchangeably with present single phase machines, and in fact "dove-tail" in with existing systems just as well as new single phase generators. The two phase motors this company furnishes are perfectly adapted for use on currents of the same frequency, as the existing lighting circuits, that is, 15,000 or 16,000 alternations, so that to avail of the advantages of this two phase system does not necessitate changing the present lighting transformers in order to secure economical conditions of operation.

What is needed by existing stations is a system that will fit on to, and work in with, their present plants and enable them to furnish power from self-starting motors, taking current about in proportion to their load. The Stanley Electric Manufacturing Company offers such a system.

There has been a great deal said in the journals, both foreign and domestic, during the past three years about the question of frequency. The reasons are these:

First. An alternating current motor, operating substantially as direct current motors do, has been greatly desired.

Second. All who have endeavored to make such motors (Tesla, Thomson, Dobrowolski and dozens of others) have found the false currents developed in such motors a most serious disturbing factor.

Third. These false currents are created in a less degree as the frequency is reduced.

Instead of adopting a low frequency. Messrs. Stanley, Kelly and Chesney have invented methods of eliminating these false currents, even where the high frequency of 133 p. p. s. (16,000 alternations) is used.

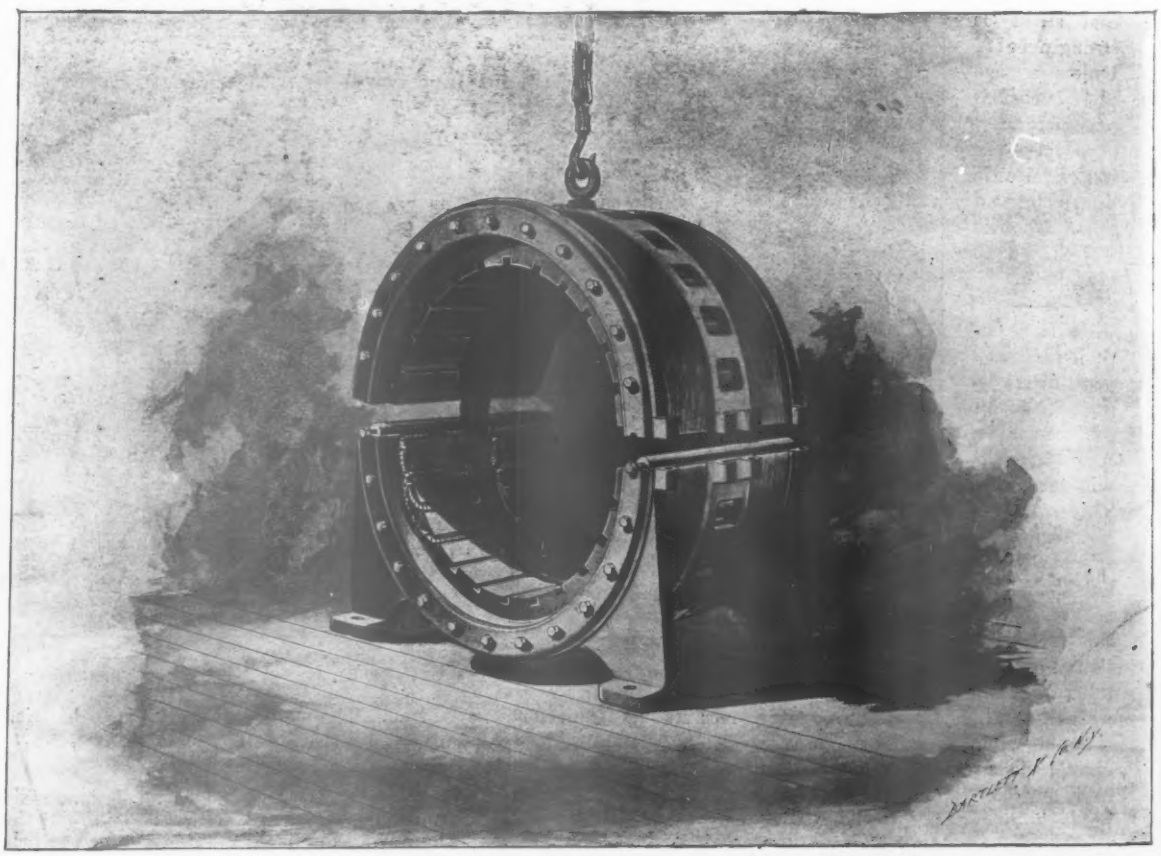


FIG. 3.—ARMATURE, SHOWING COILS, OF STANLEY ELECTRIC MANUFACTURING COMPANY'S ALTERNATING CURRENT GENERATOR.

The Stanley company's position on this question of frequency is as follows:

First. Where existing stations

already have a large investment in alternating apparatus, increase this equipment with two phase apparatus of the same frequency.

Second. Where a new station is to be established, adopt a frequency which will give the best all around economy, considering the loss in the line and the first cost and economy of operation of transformers. For very long distance transmission the loss in line due to inductance is an important consideration, and this is reduced by lowering the frequency; but, as lowering the frequency also entails either increased cost of, or waste in, transformers, and inferior regulation of the generator, care should be taken not to go to the extreme in this direction. The general rule, therefore, is: Keep the frequency as high as the local conditions will permit in order to obtain the most economical operation and, at the same time, render satisfactory service to customers.

The Stanley Company builds its standard generators of either 16,000 or 8,000 alternations, and motors for either frequency. The type of the generators enables them to be made of the same speed for either frequency. The company is also prepared to build to order special generators of any desired frequency different from these standards when made necessary or desirable by peculiar local conditions.

The apparatus described herewith is novel, different from anything heretofore made, and covered by patents which will fully protect the Stanley Company and its customers.

The illustrations, Figs. 1 and 2, give a very complete and clear idea of the construction of the Stanley Company's generator. Simplicity and dignity are the two most striking features of this machine. It is simple because it has no moving wire; no collector; no commutator. It is dignified because it is massive and strong; it runs at low speed. To gain these points nothing is sacrificed in electrical properties. Fig. 1 represents the form of machine in sizes of 240 kilowatts and larger. Fig. 2 shows the type of the smaller machines, 60 kilowatts and 120 kilowatts. The electrical design is the same in all, the larger sizes, however, requiring different mechanical construction.

The revolving part of this machine is really the field, but is more properly termed the inductor. This is made of a steel casting upon the periphery of which polar projections of iron laminæ are securely fastened. There is no wire whatever on this inductor, and consequently there are no band wires to break, no necessity for insulation and no use for a collector. Instead of being a delicate, sensitive thing to be handled carefully, insulated perfectly and feared always, like the revolving parts of other dynamos, it is simply a mass of metal which can be put in place and revolved with a feeling of perfect certainty that nothing can happen to it. The inductor is well shown in Fig. 4.

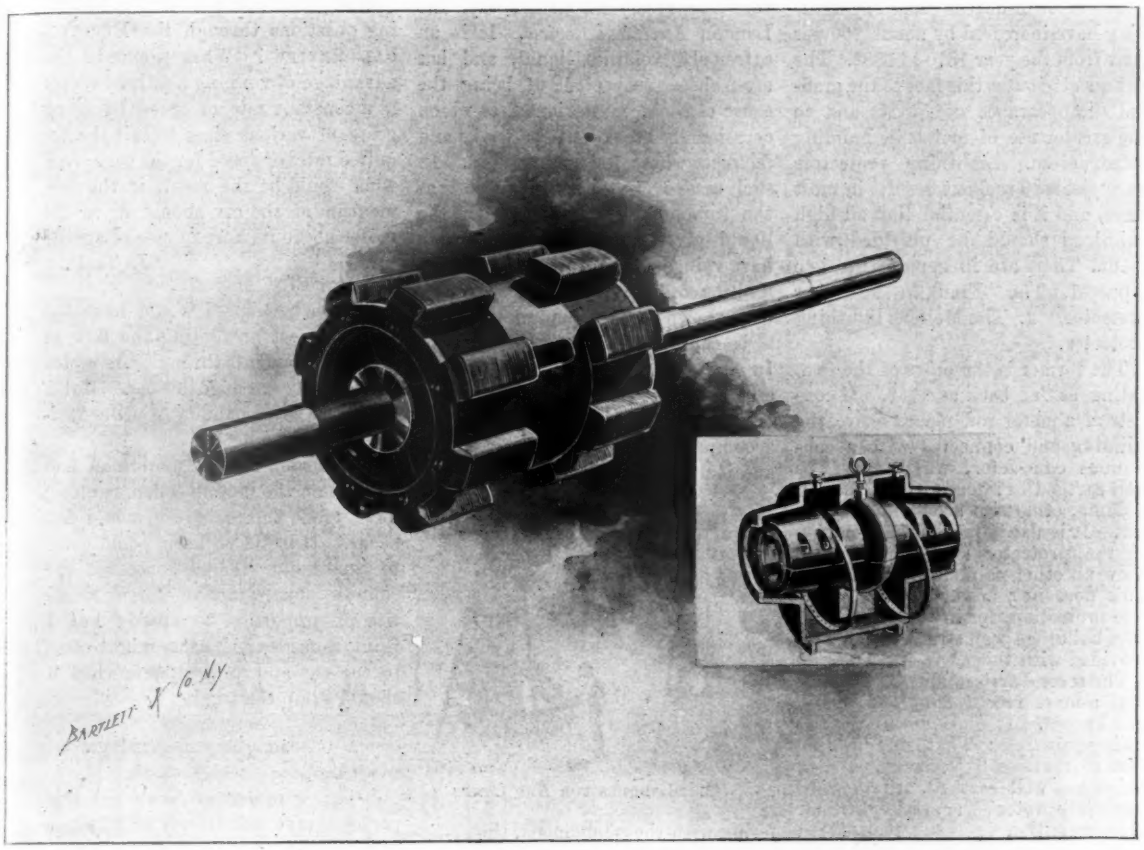


FIG. 4.—INDUCTOR AND BEARING OF STANLEY ELECTRIC MANUFACTURING COMPANY'S ALTERNATING CURRENT GENERATOR.

The armature is shown in Fig. 3. It will be seen that the armature is made up of laminæ of iron and is stationary, constituting, in fact, the body of the machine. The individual coils are very small, are wound separately on forms and then secured in grooves provided for them in the laminations. Being so small and stationary it is a comparatively simple matter to insulate them to safely withstand pressures which it would not be at all safe to generate in the old-fashioned machines. If a coil should be destroyed by lightning, or any other cause, it can be readily replaced by the ordinary men employed about a station. A few extra coils are furnished with each machine.

The replacing of an armature coil is made as simple as possible. In the small machines it is only necessary to take off the top half of the bearings, lift off the top part of the armature and raise the inductor, when all the coils are easily accessible. Removable side tables are furnished with the machine, so that by turning the hand screws on each side it can be drawn apart and all the armature coils exposed and made easily accessible. This does not require disturbing the inductor at all, which, when the machine is opened, simply hangs in its place in the bearings. The side tables need not be kept in place except when needed, as they are removable. No special tools or appliances are necessary to insert a new coil.

In Fig. 4 with the inductor are also shown the details of the bearings. These are of the most approved self-oiling type, are very carefully constructed of the best materials and are very generous in dimensions.

The armature and field wires are brought out from the machine to a terminal board shown in the cuts on the machine, and from this terminal board the leads are taken out. With this arrangement no wires of any kind are shown festooned about the machine and everything is ship-shape and neat. The terminal board consists of two heavy slabs of marble, one secured to the machine and the other forming a removable cover. This cover on its inner face is divided into partitions so that, when in place, each terminal is in a compartment by itself. It is so arranged that fuses may be

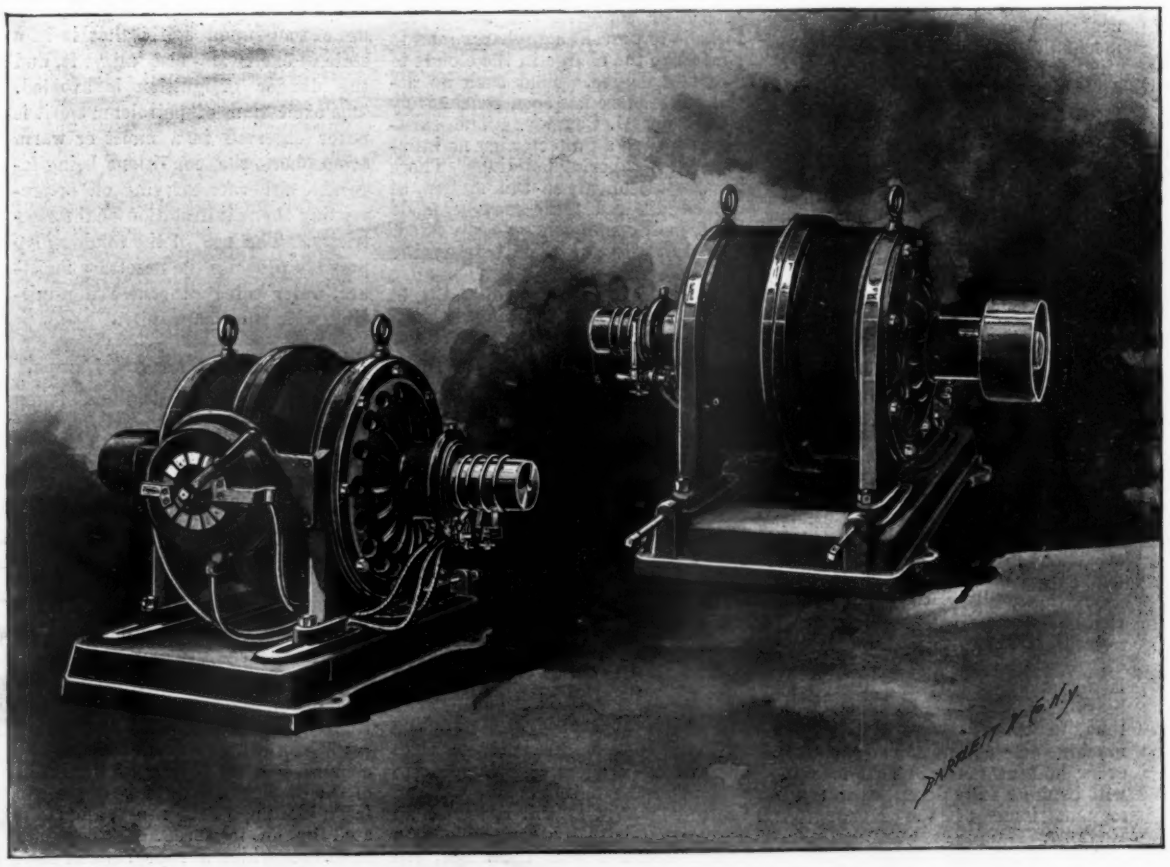


FIG. 5.—STANLEY ELECTRIC MANUFACTURING COMPANY'S TWO PHASE MOTORS.

inserted in the leads, if desired as an extra precaution against short circuits. By simply changing the connections on this terminal board the armature coils may be connected either in series or parallel, so that the standard machines may be connected for either 1,000 or 2,000 volts as desired.

The field or exciting coil is circular and wound on a copper spool which rests in the center of the machine surrounding the inductor. Constructed in this way it is easily insulated to a very high degree, and, being enclosed on three sides by the heavy copper spool, danger of breaking down of the insulation due to a discharge, caused by a breaking of the field circuit when it is fully charged, is practically removed. The base provided with each generator is of iron and very substantial, and, as shown in the cuts, is provided with a means of sliding the machine so as to tighten or loosen the belt at will.

The efficiency of this generator is shown in the following table furnished by the Stanley Company:

	60 K.W.	120 K.W.	240 K.W.
Efficiency at full load.	94%	95%	96%
" " half load.	91%	93%	94%
" " quarter load.	85%	88%	90%

The Stanley generator has an inherent regulation of from six per cent to nine per cent, depending on the size of the machine and the margin of electro-motive force desired on it. It is stated that with these generators, the full load, excepting one lamp, can be thrown off instantly without materially increasing the brilliancy of the one remaining lamp (provided, of course, the speed of the machine is constant), and this is accomplished without any extraneous regulating device whatever.

The advantages claimed for these generators are as follows: First, highest efficiency; second, best inherent regulation; third, no moving wire; fourth, no collector or commutator; fifth, slow speed; sixth, coolest running; seventh, generates a correct current wave; eighth, least liable to burn outs; ninth, easiest to repair; tenth, cheapest to repair; eleventh, neatest in appearance; twelfth, most mechanical; thirteenth, most simple and convenient: fourteenth, most substantial; fifteenth, it is decidedly novel and combines the result of all the experience of the past in alternating current generator construction with the ripest knowledge of theory and the most brilliant appreciation of the direction in which improvement has been needed.

The "S. K. C." motor, shown in Fig. 5, is novel and its principle of operation is entirely distinct from the so-called rotary field types of motor. In it there is no attempt to combine the influences of two sets of alternating current magnets in order to produce a rotating magnetic field. This motor may be best described as consisting of two parts, a motor proper and a rotating transformer, the two parts alternately exchanging their functions. It consists electrically of two fields, which are fed by currents differing 90 degrees in phase, and two armatures, though mechanically there is but one, as shown by the cuts. The winding is so connected that the wire, which lies directly under poles on one armature, is in series with the wire lying between poles on the other. It is clear that in this position one-half the machine acts as transformer and the other half as motor. This machine will be more fully described in a subsequent issue of the ELECTRICAL REVIEW.

The City Council of Annapolis, Md., has contracted with the Annapolis Electric Light Company for two years' all-night lighting of the city.

MEANS OF PROTECTION AGAINST LIGHTNING.

BY P. HOHO, IN "LA LUMIERE ELECTRIQUE."

Official German reports show that the number of deaths caused by lightning have increased by about 200 per cent from the year 1870 to 1882. The author attributes this fact to the gradual disappearance of forests and to the greater use of metals in building construction. Lightning protectors have yielded excellent results in most cases, and it is essential that all high buildings should be provided with them. There are in general use two types—1. The Franklin lightning protector. 2. The Melsens lightning protector.

The former is the older of the two, dating as far back as 1752. It consists of a metal rod placed above the building and connected with a continuous conductor, which must be well earthed in a place where the soil is damp, otherwise accidents may occur. It is also important that the top of the protector should tower well above all other points on the building. This does not, however, afford absolute protection, for in many instances have buildings been struck which were provided with them.

The second system, due to Melsens, is of a more recent date, and not so well known. It depends on the following principle: That, if a building were surrounded by a metallic screen which was well earthed, it would be absolutely protected against lightning. This condition is easily realized in practice. The salient points of the building—preferably metallic parts—must be judiciously connected by a metallic circuit, which must be earthed at a number of points. It is also advisable to fix metallic forks above this circuit. The latter may be of large galvanized-iron wire, phosphor-bronze or copper. The use of the forks is to prevent a discharge, and to neutralize the charge in the clouds to a certain degree. That such an action takes place has been conclusively proved by M. Courtoy. The existence of such a protector has no influence on neighboring buildings. There is a great economy in this system, as the circuit and forks may be made light, and, consequently, easily fixed. The difference in price between the the two systems is considerable.

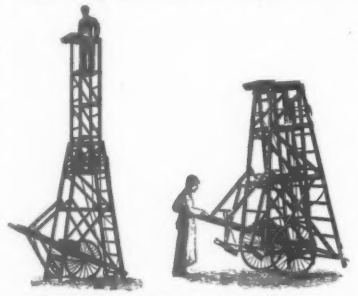
Owing to the number of paths to earth through the building, less attention is required than with the other system. The author states that no building, to his knowledge, has ever been struck by lightning which was carefully fitted with such a system, and where Melsens' principles have been observed. This system is largely used in Belgium; it has been recommended by L'Academie des Sciences in France, notably for powder factories and magazines, and has also been adopted in England for protecting ships.

About Summer Advertising.

This Summer's advertising can be made profitable if proper precaution and skill are exercised in conducting it. The people are ready to avail themselves of offers which appear to present means of economizing. And the merchant who will advertise an article that is really serviceable, at a price consistent with the times, will find that he will get a good share of the money that is spent. The man who fails to advertise this Summer will find it a most dreary season.—*Printers' Ink.*

Some Curious Electrical Phenomena.

Petroleum spirit, or benzine, is a substance which is largely used in the silk and wool industries, and in "chemical cleaning" works, as a solvent for greasy impurities, says the London *Electrical Review*. It is an extremely volatile liquid, and has often been suspected of being the cause of those mysterious fires which occasionally break out in works and factories where it is much used. In such cases it has been supposed that the inflammable vapors which the liquid gives off must in some way have gained access to a light. The ignition of petroleum spirit has now been shown to be "spontaneous," and to be caused by electrical excitation. In the cold, dry days of Winter, especially, the spirit becomes excited, sparks and flashes of light are seen, accompanied by crackling sounds; and if no provision be ready for interfering with the phenomena, the spirit may soon be ignited. In Germany, Kissling has recently recommended that a small quantity of some kind of soap, soluble in petroleum spirit, be dissolved in it; this prevents the electrical excitation, even when so little as 0.2 to 0.3 per cent is added. The use of soap upon spirit that is in a state of excitation also allays it, and the danger of ignition is avoided. The excitation of petroleum spirit is never observed in a moist or warm atmosphere, the conditions being favorable either for carrying off or preventing the manifestation of the electricity. The use of the soluble soap possibly provides the necessary moisture, water being otherwise non-miscible with petroleum spirit.



STREET LADDERS FOR ARC LAMPS.

Street Ladders for Arc Lamps.

The annexed illustrations taken from the London *Electrical Engineer* show a telescopic ladder tower for a man to wheel about the roadways to attend street arc lamps. The wheels are of the heavy cycle pattern, with spring wired rubber tires, 40 inches diameter. The base is six feet by three feet six inches when closed, 10 feet six inches high, and a platform in the sliding section, two feet by one foot nine inches, enables the trimmer to reach 25 feet, at the same time being surrounded by a guard rail which carries a small table. The construction is of Swedish fir, rungs of Quebec birch, with locks of steel to fall under any of the rungs, and actuated by an iron rod. Pulleys are fixed over which a rope runs in such a way that the upper section is raised or lowered with the greatest ease. Mr. Heathman, of 2 and 37 Endell street, London, supplies this telescopic ladder tower.

QUESTIONS AND ANSWERS.

BY OUR "QUESTION EDITOR."

RAILWAY MOTORS.

TO THE EDITOR OF ELECTRICAL REVIEW:

Will you please answer the following questions through the ELECTRICAL REVIEW? What would be the advantage of running a railway motor at a constant rate of speed by using gears of various sizes to suit the required rates of speed for the car? And what would be the result if the momentum of the car should drive the motor above its normal rate of speed?

J. T. P.

Jersey City, May 21.

1. Constant speed would have the advantage of preventing the flow of abnormal currents through the motor at time of starting the car. But I doubt the practicability of using variable sized gearing.

2. Unless a foolish motorman had current on the motors when running down grade this condition could not occur. If it did no harm could come to the motor thereby, because the counter electro-motive force would rise in proportion to speed; but I think considerable harm might come to the car and its occupants when it should jump the track.

A DANGEROUS EXPERIMENT.

TO THE EDITOR OF ELECTRICAL REVIEW:

Being a reader of your valuable paper I take the liberty of asking a few questions. Take two examples, one a man with rough, hard hands, and the other a woman with soft, delicate hands. Let each grasp a trolley wire of 500 volts and complete the circuit through their shoes. How many volts would each get? Or could they receive the full voltage, or would there be a loss in proportion to the R? If so, could a voltmeter be connected on the arm and ankle and get the voltage? What would be the R in ohms in both cases?

By answering these as soon as you can you will greatly oblige.

J. O'T.

Williamsport, Pa., June 3.

No reply is possible. It is all a matter of conditions at the moment, except that I can say if the potential difference between the trolley wire and earth is 500 volts, both persons will receive a very large proportion of it; all of it, if the earth be reckoned as having no resistance. If the earth has some resistance, then you must figure by proportion. The two examples tell nothing. The horny-handed man might be in a state of profuse perspiration, while the lady would likely be cool and collected and have dry hands. In that case the man would get the worse shock. No doubt the fall of potential between the arm and ankle could be determined with a voltmeter whose coil is of extremely high resistance; but you may find it hard to get anyone of either sex to submit to the test, and I urge you not to attempt such.

You can take a few cells of bluestone battery and measure the R and then calculate what would occur with 500 volts.

Resistance Standards.

A new standard coil intended to be free from the objections incident to previous forms has been evolved from the laboratory of Queen & Company, Philadelphia. It is of the oil immersion pattern, but with important modifications.

Fig. 1 shows a section through the center. S, the standard coil made of platinoid, is wound on a metal cylinder, the surface of which is covered with a thin coating of insulating material. On a similar cylinder inside of, and concentric with, the standard coil, is wound the temperature coil T, similarly insulated. These two coils are immersed in a bath of specially treated resin oil contained in the chamber M. It will be noticed that the coils S and T are wound between the same limits of height and depth, and that the casing V is perforated with many holes, so as to allow the utmost freedom of circulation to the coil. M, in turn, rests in an oil bath and is surrounded by the concentric thin cylinder on which is wound, non-inductively, a coil of copper wire H. This wire is placed in series with a generator of some sort, and an adjustable resistance serves to maintain the temperature at any desired point.

Those who have made use of the oil bath and gas flame for this purpose can appreciate how great an improvement is the electrical method of heating for both constancy and convenience. The heat produced by H is equalized over the surface of M, and thence conducted to the interior parts. A double-walled containing vessel, with a space between the walls stuffed with asbestos, as shown at A, serves to render the apparatus independent of external heating or cooling effects. The ends of the standard coil are soldered to the inner ends of the terminals which are made of massive copper, similar in design to the standard British Association ohm.

The object in making the terminals so massive is to have their resistance negligible in comparison to the standard coil proper, so that any rise of resistance caused by the temperature of the terminals being higher than that of the coil may be so small a fraction of the resistance of the coil and terminals as to be safely neglected.

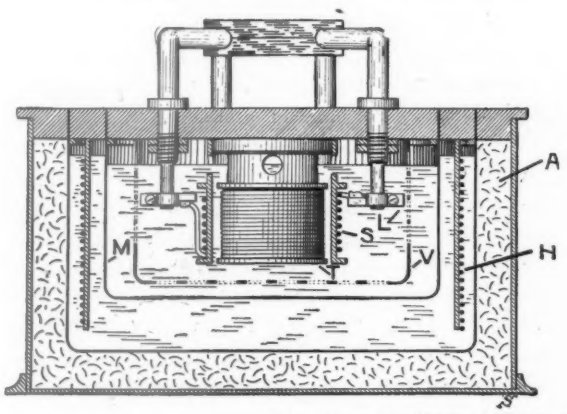
The temperature coil is composed of copper and platinoid, the proportion of the total resistance supplied by each metal being so adjusted that for each degree centigrade rise in temperature the temperature coil increases its resistance $\frac{1}{10}$ of one ohm, measured in terms of the standard (*i. e.*, measured by the standard without correcting for its temperature).

Fig. 2 shows the exterior view of the standard. D is a flexible wire serving to connect one of the terminals B of the temperature coil to whatever apparatus is used for the measurement of the resistance of that coil. The other terminal is exactly similar. K K are two terminals of the heating coil. The whole apparatus is readily dissectible. By unscrewing two nuts and lifting on the handle in the center, the plate which holds the standard and temperature coils can be lifted out and both exposed to view. By unscrewing two other nuts the heating coil can be lifted out.

The method of comparing coils with the standard is this: Having a slide-wire bridge and Carey-Foster commutator, connect the standard to one side and the unknown to the other side to the Carey-Foster. Adjust the slider until on depressing the key the galvanometer gives no deflection. Read the position of the slider and reverse the commutator. Adjust and read again.

The difference in reading in millimeters multiplied by the resistance of a millimeter of the bridge wire in ohms gives the difference in resistance between the standard coil and the unknown (not corrected for the temperature of the standard). To make this correction, replace the unknown by the temperature coil and go through the same operation. From the difference of the two settings the resistance of the temperature coil is computed, and then simple arithmetic gives the temperature of the standard.

A very slight alteration of the design for the standard ohm makes a most desirable arrangement for the very important measurement of the temperature co-efficient of the metals. If in place of soldering the standard coil to the heavy terminals, we arrange nuts so as to clamp specimens whose co-efficient we desire, it is evident that we have with the Carey-Foster bridge all the apparatus necessary. For the specimen is in an oil bath, the heating coil serves for raising to any desired temperature and keeping it there, and the temperature coil measures the temperature with great accuracy.



FIGS. 1 AND 2.—QUEEN & COMPANY'S STANDARD RESISTANCE COIL.

Thrills on Tap.

"I appreciate the honor you have conferred upon me, Count," said Edwina with a sigh, "but I cannot marry you. You are pleasing to me, and I know you have a truly noble character, but you do not—do not—thrill me. I have longed all my life to be thrilled. It may be romantic and even silly, but years ago I determined that I would marry none but a man who could thrill me. I am very sorry that—"

"One moment," interrupted Count Galvani. "If it is only a question of a thrill I can supply that fast enough. Stand up, please."

"What do you mean, Count?" cried the young girl.

"Just do as I tell you, please," said the Count in the tone of the man who poses sitters in a photograph gallery. "Extend your arm, so. Open your hand. That's right. Now."

And the Count, after fumbling beneath his coat for a few seconds, grasped her extended hand firmly.

"Oh," cried Edwina, "how delicious! That is a thrill indeed! Count, I am yours." And she threw herself into his arms.

As the Count left the palatial mansion of the heiress he murmured:

"It pays to be the electrical man in a dime museum, even if the salary is only 10 dollars a week, exclusive of batteries."—*Judge.*

Electric Scenic Theatre for Coney Island.

A number of well-known electrical men have formed a company to build and operate an electric scenic theatre at Coney Island, N. Y., during the Summer. A handsome building, seating 400 people, will be erected in a choice location convenient to the railroad station and both the iron steamboat piers. The scenic theatre will be similar to that exhibited by the Western Electric Company at Chicago, but will be larger and finer.

An Electric Club Dinner.

The former officers of the New York Electric Club have issued invitations to the members of the club for a dinner at the Hotel Imperial on June 21. It is intended to have at least one of these dinners each year, and the movement may result in the reorganization of the club.

An election is to be held at Estherville, Ia., to decide the question of bonding the city for $12,000 to put in an electric light and water plant.

PERSONAL.

Mr. Charles R. Huntley, general manager of the Buffalo General Electric Company, was in New York last week.

Herman E. Doolittle, a veteran telegrapher, in charge of the Western Union office at Lafayette, Ind., died on June 2, aged 62 years.

Miss Lillian Estelle Westcott was married to Mr. Carl Eickemeyer, son of Mr. Rudolph Eickemeyer, at Yonkers, N. Y., on June 7.

Judge Wallace of the United States Circuit Court has fixed the fees of Thomas C. Platt and Marsden J. Perry, as receivers for the New York and New England Railroad Company, at $1,000 a month each.

Eugene T. Worthing, superintendent of the Biddeford and Saco, Me., electric street railway, was critically injured at the car house on June 2. He was jammed between a car post and the building, his body passing through a space only six and one-half inches wide.

Mr. C. J. H. Woodbury has resigned the vice-presidency of the Boston Manufacturers' Mutual Fire Insurance Company, his resignation to take effect September 1. His active connection with the company will terminate July 1, a leave of absence having been granted for the remaining two months. On September 1 he will enter the service of the American Bell Telephone Company.

Mr. F. E. Donohoe, who is well known to the electrical public generally, has severed his connection with the Safety Insulated Wire and Cable Company, of New York, and has accepted the western agency for the American Electrical Works, of Providence, R. I. Mr. Donohoe will make his headquarters in Chicago, and with the merits of a good article to assist him should meet with the fullest success.

All the heads of the several departments of the Edison Electric Illuminating Company, of Brooklyn, N. Y., assembled in the Clarendon Hotel one evening last week to pay a tribute of their regard to Robert Lindsay, chief electrician of the company, who has gone to Cleveland, where, as general superintendent of the company there, he will seek to bring the affairs up to the high standard that prevails in the Brooklyn company.

Mr. Aleck H. Lewis, widely known among electrical people generally, has accepted an important agency for the Abendroth & Root Manufacturing Company, makers of the Root improved water tube boiler. Mr. Lewis will make his headquarters in Cincinnati, where he lived for many years and where he is held in high esteem. He is one of the best salesmen in the electrical and allied industries, and during his long connection with the railway department of the General Electric Company closed many large and important contracts. We congratulate both the Abendroth & Root Manufacturing Company and Mr. Lewis on the business connection which they have just established.

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The revival in business is shown in the increased receipts of the telegraph offices.

Now that the telegraph is 50 years old we hope the daily press will cease to refer to at least one branch of electrical work as being "in its infancy."

"What a handsome paper you are printing now! I beg to congratulate you on the character of it." Thus writes Mr. F. E. Drake, of the very successful Standard Electric Company, Chicago.

Frank Leslie's Illustrated Weekly published a very attractive "Greater New York" edition recently. If the twenty story buildings shown become a popular feature, the electric arc light will be needed to recompense for the light of day thus shut out in all the streets of the city.

LIGHTNING RODS.

The following inquiry has been received from a correspondent:

"Please inform me if a lightning conductor fastened solid on a building with iron or steel clamps can be considered done in a scientific and safe manner?"

We confess there is room for a good deal of speculation in the inquiry. Of course, it would depend upon the nature of the building, to a certain extent, and whether the iron clamps penetrated into contact with any discontinuous portions of metal framing or other structural part of the building. It would also depend upon the character of the lightning rod. If the latter be of very heavy copper and the iron clamps be relatively small, we incline to think they would do no harm. This would be particularly true if rain falls before the stroke of lightning appears.

There seems to be a good bit of nonsense and tomfoolery about lightning rods. The whole question seems to us to resolve itself into one of relative conductivity. If a building as a whole is a path of less resistance than its lightning conductor, then the latter is of little service. There is hardly a single electrical question to-day about which so much uncertainty exists, and so much empirical humbug practiced.

Beautiful planished copper rods are placed upon a building surmounted with plenty of splendid tips and the rods are threaded through glass insulators and brought to a "ground" made of a flake of copper a few feet square, a stove-plate, or a good-sized iron bar driven several feet into moist earth, and the job is done. Some glib-tongued agents will advise a twisted lightning rod, and their argument is about as apt as though they said that the electricity had to whirl as it passed down such a rod and got so dizzy on the way it lost its force and finally fell out into the earth.

If the theory of lightning protectors for buildings is worth anything, few buildings to-day have anything like adequate security. The rods are too small, of poor material, are poorly insulated and inadequately grounded. Under such circumstances, our correspondent's idea would pass muster as being fairly safe. A house is built and supplied with a three-eighth inch galvanized iron lightning rod on glass insulators, with a ground plate perhaps a foot square set in uncertain moisture. The same house has hundreds, perhaps, thousands, of feet of heavy gas, water, or steam pipes distributed in all parts, perhaps some only a foot from the rod. These pipes are all connected to their respective distribution mains under the streets, and on the face of it they afford a better path for the lightning than the patent rod. Yet it is thought strange if the lightning plays pranks, refuses to be harnessed and driven down the rod, and wanders among the better conductors. It may even meet a bad joint in a pipe and, breaking away, make a plunge for a more inviting pipe many feet away, and something may get damaged in the interval. What should be the construction is an open question.

We believe a building does receive a sort of protection by a well constructed rod and point system. In a condition of moderate electrical activity, the points seem effective and the rods carry off the charges satisfactorily; but when in a heavy electrical storm one of those awful, vivid and almost blood-curdling flashes comes out of the humid air, no ordinary rod is of much use. Such energy concentrated on any rod of ordinary type would reduce it to vapor. To provide against such terrific attacks the lightning protectors of a building should indeed be modernized. They should be numerous, have plenty of points, have great conductivity, and jointly should offer a better ground than any afforded by the building or its contents. The capacity for grounding seems the all-important feature.

We may hear of the colossal steel frame buildings being struck by lightning, though we do not recall any; but who has yet heard of one of them being damaged by the stroke? Indeed, we may say that immunity from lightning is not one of the least advantages of these modern steel frame structures. And yet there is no attempt to insulate the massive skeleton. Our correspondent's idea is here carried out in perfection. The conductors are great steel beams or columns bolted together from roof to foundations and directly bedded in the walls. The two great requisites are found, *i. e.*, vast conductivity and better grounding than any pipes in the structure, for their ribs and backbone go away below all gas, water or steam pipes in the street and down into the very bowels of the earth, where perennial moisture over a vast area is assured.

Hence, we believe that for a building not of the steel frame construction it is necessary for effective safeguarding to have very large conductors well connected to a network of points at the roof and extending down to a really efficient system of ground connections. The average house owner would be horrified at the cost, and therefore he will continue to be bamboozled by the lightning-rod agent, the man-who-knows-it-all.

CORRESPONDENCE.

OUR CHICAGO LETTER.

The Beacon Vacuum Pump and Electrical Company, of Boston, have established an agency for the sale of the well-known "Beacon" incandescent lamps at 323 Dearborn street, Chicago.

The remains of the late J. Livingston Barclay, formerly manager of the Walker Manufacturing Company, have been removed from the vault and interred in the family lot at Oakwood Cemetery, Chicago.

Mr. Clift Wise, who is building the St. Joe and Lake Shore street railway at St. Joe, Michigan, reports the work nearly completed. The road is nearly three miles long, passes through the heart of the fruit region and will derive a reasonable income from the haulage of fruit.

General Tourist Latimer, of the Central Electric Company, has returned to Chicago after a very successful trip through Wisconsin, Minnesota, Dakota, Iowa and Illinois, visiting nearly every town and becoming thoroughly acquainted with the electrical fraternity.

The Simplex Electric Company will hereafter be represented in Chicago by Mr. H. R. Hixson who has established his headquarters in the Monadnock building. General manager Mason of the Simplex company has been in Chicago this week arranging for the transfer. Mr. Hixson stands well with electrical purchasers and the REVIEW wishes him every success.

The Northwestern "L" officials are consulting with Manager Bailey, of the John A. Roebling's Sons Company, for the purchase of the big warehouse on Lake street, for which the Roeblings paid about $100,000 some five years ago. It is proposed to have the "L" structure pass directly through the blocks between Lake and Monroe street, and the cost of condemnation will be very heavy.

The Harrison Telephone Company at a called meeting of the stockholders this week reduced the capital stock from $80,000,000 to $40,000,000, as half the stock was treasury stock, and never having been issued was cancelled. The contracts for construction work entered into with the McElroys, of New York, were approved. The system in Ohio will be controlled by the Ohio Harrison Telephone Construction Company.

The Metropolitan Elevated Road expects to receive bids from every maker of large generators in the country, as copies of the specifications calling for bids on 5,000 horsepower generators have been supplied to all applicants. It is claimed that the speed of trains between stations will be fully 40 miles an hour, or twice as fast as is now possible with steam locomotives, owing to the higher efficiency of the electric motors, while there is also a saving in the time usually lost in getting under headway.

Chicago, June 2. F. DE L.

THE LATEST NEWS.

Mr. Stone's bill to define and establish standard electrical units has passed the House.

Arrangements are being completed by which all the electric roads in St. Louis will be consolidated under one management.

It was announced by the General Electric Company on Monday that an injunction had been granted in Boston in their favor against the Pollard lamp.

The Park Department of New York city has advertised for bids for an electric light plant for the American Museum of Natural History. The bids will be opened on June 20.

Bids for the equipment of the new municipal electric plant at Marblehead were opened recently. At the present writing no information as to who will receive the contract has been given out.

The formation of the Cleveland Electric Illuminating Company, controlling the local illuminating companies of Cleveland, O., has been completed. It is said that extensive improvements to the amount of $500,000 will be made immediately.

It is said that the New York State Board of Railroad Commissioners will issue a pamphlet defining its position in the matter of the $50,000 prize for an underground electric system offered and withdrawn by the Metropolitan Traction Company, of New York city.

The ELECTRICAL REVIEW this week is dated June 13 and published at 13 Park Row. Besides, this is Number 24 of Volume 24. If there is luck in odd numbers we have reason to be happy; anyhow, we have two pairs, and that is a pretty good hand these days.

The large electric search-light from the Manufactures building at the World's Fair has been erected on a tower 100 feet high on the government proving grounds at Sandy Hook, N. J. Several successful tests of the light were made last week. It will form a part of the coast defense equipment.

The Edison Electric Light Company brought suit in the United States Circuit Court last week against four Chicago companies. The defendants are the Star Electric Light Company, the Empire Electric Light Company, the Chicago Incandescent Light Company and the Co-operative Electric Light Company.

Contracts have been signed for equipment by the General Electric Company of three miles of conduit electric railroad for the Metropolitan Traction Company in the upper part of New York city. It is said that the system offered by the General Electric Company is very similar to the Siemens & Halske system and that if it is installed patent litigation will follow. It is understood that the Siemens & Halske Electric Company refused this contract owing to its unwillingness to assume certain guarantees insisted upon by the Traction company. The conduit road will run north on Columbus avenue from Ninety-eighth street, where the cable road terminates.

Wall Street and the Electrical Stock Market.

The market of the week had a sharp advance under the covering of the short interest, which was prompted by the near approach of the final vote on the Tariff bill, and the probable settlement of the coal strike. The vote on the Sugar schedule amendment in midweek was regarded as a test of the final disposition of the bill by the Senate, and construed to mean that it will be passed about the 20th of June. Industries of all kinds have pursued a waiting policy until such a time as they could have a tariff on which to base their operations. The necessities of the people of the country are very great, and the passage of the bill would mean a general industrial revival. The soft coal strike, which is now six weeks old, and which has seriously interfered with manufacturing and railroad operations, is reaching a climax. A settlement will mean a starting up of plants and greater movement of freight, which will materially increase railroad earnings. Because of these two factors the bears have been busy all the week covering their shorts, and the leaders are known to have balanced their accounts and withdrawn from the market. A number of bull pools have stepped in and through their manipulation have given the appearance of activity to the market. There has been no interest outside of the professional, except perhaps a little London buying. The gold movement continues, the exports for the week being $6,150,000.

The electrical stocks showed some hardening in sympathy with the general movement, and those which were at all active showed sharp advances. I hear additional reports this week of the revival of the electrical supply demand which is extending further westward. Several of the prominent Wall street houses, owing to the cheapness of money, are devoting more attention than usual to street railway issues. They have been led to this through the stability in the recent panic of the street railway stocks, as compared with other corporation issues.

Western Union advanced for the week from 84 to 85⅛. The Collateral Trust 5's sold at 108, which is the highest price reported for some time. Edison Electric Illuminating sold between 99 and par. The 5 per cent bonds were in considerable demand as an investment between 106 and 106½. American Telegraph and Cable sold from 88½ to 89. North American sold between 4 and 4¼. This latter company holds its annual meeting in New Jersey on June 20. During the year it sold most of its Northern Pacific, Chicago and Northern Pacific and Wisconsin Central collateral, and is now little better than a shell. An effort was made at the last annual meeting to wrestle the control from the Villard interest. It was headed by Mr. Henry Clews. It is probable that there will be no opposition this year as the property is hardly worth fighting over.

Commercial Cable was bid 130, the ruling quotation for some time. It has declared a quarterly dividend of 1¾ per cent, payable July 2. Books to close June 21 and open July 2. Interior Conduit and Insulation was offered at 55; Postal Telegraph has bid 55 and held at 65.

General Electric was the most active stock of the electrical list and one of marked activity in the general list. It opened the week at 35⅛ and touched 38⅛ on Friday. The movement was started by A. J. Weil & Company and one or two other bears, who covered their lines of short stock. There was very little stock to be had, and room traders noting that fact bid up the price for a turn. Around top prices realizing sales were met with. On Thursday, after these profits were taken, causing a reaction of about a point, the stock again went to top figures on Friday. I do not take any stock on the report that a bull pool has been formed to put the stock to 50. A feature of considerable importance in connection with General Electric this week was the action of the Fort Wayne Company, a full account of which will be found in another column of this issue. I understand there has been trouble between these two companies for some time, which culminated in the receivership, which is regarded as a scoop on the General Electric party. R. T. McDonald, who petitioned for the receiver, is a large endorser of the defunct Madison Square Bank of New York and also of the Fort Wayne Company, whose affairs are said to be mixed up with the Madison Square Bank. The General Electric Company owned something like 76,800 shares of the Fort Wayne stock, which it valued in its annual report at $1 per share. It also had claims for moneys advanced during the year prior to May, 1894, for $500,000. This loan indicates clearly that the transactions between the two companies were large, and that the General Electric found it to its advantage to continue its relation with the Fort Wayne Electric. The Fort Wayne company, I am told, which, by the way, is capitalized at 160,000 shares of stock, the par value of which is $4,000,000, the market value $320,000, has all along tried to cut away from General Electric, which has owned a little less than half of the stock, and the move of the majority interests to reorganize the company into the Fort Wayne Electric Corporation, and the transfer of all the assets to the new company, would seem to indicate that it had stolen a march upon General Electric. This opinion is emphasised by the action of General Electric on Friday in filing a claim for the $500,000. The validity of this claim, of course, depends upon the legality or illegality of the transfer of the assets of the old company to the new.

It was made in Chicago and advices concerning the same contain no information as to which concern is liable for the liabilities. A point in this connection worthy of due consideration is this: Was it good financiering on the part of General Electric to loan the Fort Wayne Company $500,000 when General Electric valued, in its annual report, the Fort Wayne Stock at $1 per share, or $160,000?

On the Boston Exchange Bell Telephone showed further strength, advancing from 198¼ to 201 and closing at 199; Erie Telephone advanced from 44½ to 47½; General Electric preferred was strong around 67; New England Telephone between 60 and 60½; Fort Wayne was quoted at 2 and 2½; Westinghouse preferred sold at 52, and the assenting at 37.

BAIN.

New York, June 9, 1894.

Many electrical eyes are turned Clevelandwards. The relations of the Brush Company and the General Electric are the subject of much comment. The action of the Fort Wayne company may precipitate a combat on the lake—and then again, it may not.

When the General Electric and Fort Wayne Electric lock horns a struggle of giants begins. The first round is evidently in favor of Indiana.

THE STORE COMPLETE.

BY FRED. DE LAND.

How seldom we realize the pleasure experienced by residents of small towns when opportunity affords a chance of visiting a department store in Chicago, complete in every detail, and where under one roof every needful article that a housekeeper can desire may be quickly obtained. Accustomed to the limited and ancient

FIG. 1.—PRESIDENT GEORGE A. KCKINLOCK, CENTRAL ELECTRIC COMPANY, CHICAGO.

stock of the local trader, the change is as refreshing and as heartily enjoyed as is the plunge in ocean surf by the lad whose horizon was previously bounded by the village pond.

As there is only one Marshall Field's, only one Tiffany's, toward which the experienced buyer always turns when there is need of the latest and best at reasonable prices, so there is but one Central Electric Company, where all that can be desired by central station manager, contractor and engineer is attractively displayed—warerooms that in floor-space, in convenience of arrangement, in simplicity yet richness of equipment, have never been equaled in the electrical supply line.

Entering through the great doors on Adams street and wending his way rearward the customer will pass lines of show cases and show tables holding samples of all that is fresh, and salable, and seasonable, and so suggestively arranged that he is reminded of necessities that otherwise would have been forgotten. An exhibit that well illustrates the old saying that a proper presentation of an article is half the work of selling.

To the right of these cases is the long row of wide solid oak counters, remarkable for the number, convenience and depth of drawers and bins. And in the rear of the counters stand the upright cases and the rows of drawers, open bins, and shelving, all of heavy polished, antique oak. Each is suitably labeled and contains that which is latest, most practical, most salable, that can be most quickly converted into available assets. No dead stock; no unsalable goods; no supplies that have been hawked about from pillar to post, and which must be eventually thrown into the scrap-heap, unless they can be unloaded on some unfortunate customer.

To the left of the entrance are the offices, that of Mr. Charles E. Brown, the genial secretary, coming first. Then comes that of the president, Mr. George A. McKinlock, compact and conveniently arranged for the rapid transaction of business. It is in just such an office that we expect to find a successful man. And here is one who by shrewd foresight and honest pluck and preseverance won a fortune before he was twenty-five, and before he was thirty had lazily floated on the Nile, driven across the steppes of Russia, enjoyed a Winter's season in Paris, and then returned home to form and control "the largest and best appointed supply house in the world." The offices of the correspondents and the accounting force adjoin each other. Then there is a handsomely furnished room designed for the display of electric fixtures, and in the rear of this and extending across the entire width of the double store is the shipping room, containing every convenience for quickly "getting off" rush orders that the most active shipper could desire.

Beneath this main floor is the wide basement with its two lines of railways, turnouts, sidings, etc., and on the low platform cars may be quickly moved the enormous coils or reels of armored or of lead-covered Okonite and the other heavy supplies that abound in this department. An inspection of this basement may cause the visitor to wonder where they can ever find use for the endless miles of heavy conductors, but this wonder is converted into astonishment when he visits the second floor, and there finds hundreds of miles of the smaller sizes of Okonite, occupying bins six feet in height, and countless thousands of feet of interior tubing; of general supplies, of shades and globes there appears to be no end, yet all are fresh and clean and of the latest type. The width of this room is 50 feet, its depth 178 feet, and on these figures may be based some idea of the vast quantities of material contained therein ready for immediate shipment.

FIG 2.—MR. MCKINLOCK'S OFFICE, CENTRAL ELECTRIC COMPANY.

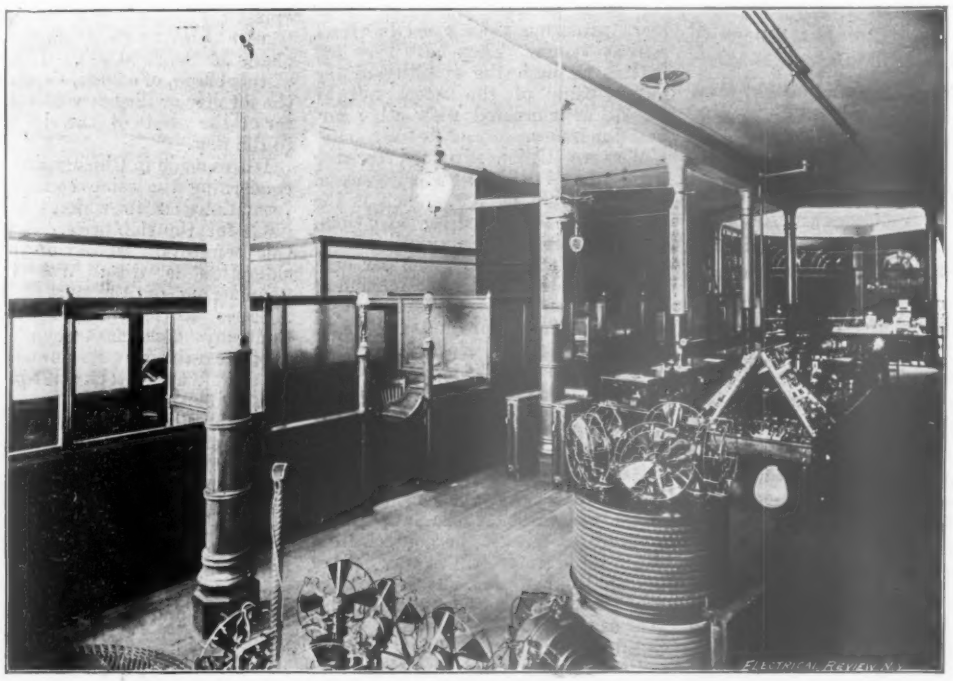


FIG. 3.—ACCOUNTING DEPARTMENT, CENTRAL ELECTRIC COMPANY.

It is needless to say that the volume of business transacted is very large, and to facilitate the rapid handling of both mail and verbal orders different departments have been created and experienced experts in their respective lines placed in charge. Thus the interior conduit department

FIG. 4.—MR. C. E. BROWN, SECRETARY CENTRAL ELECTRIC COMPANY.

is in the hands of Mr. Charles G. Burton, who, having enjoyed a practical experience in the construction, operation and maintenance of electric light stations, is thoroughly conversant with details and able to comprehend and answer the questions that so often arise and are referred to the supply dealer for reply. In fact, this department is a bureau of technical information as well as a sales department.

Over the house goods department presides Mr. W. R. Pinckard, who has had an extended experience covering several years. Possessing a thorough knowledge of the different batteries, of the best make of bells, of

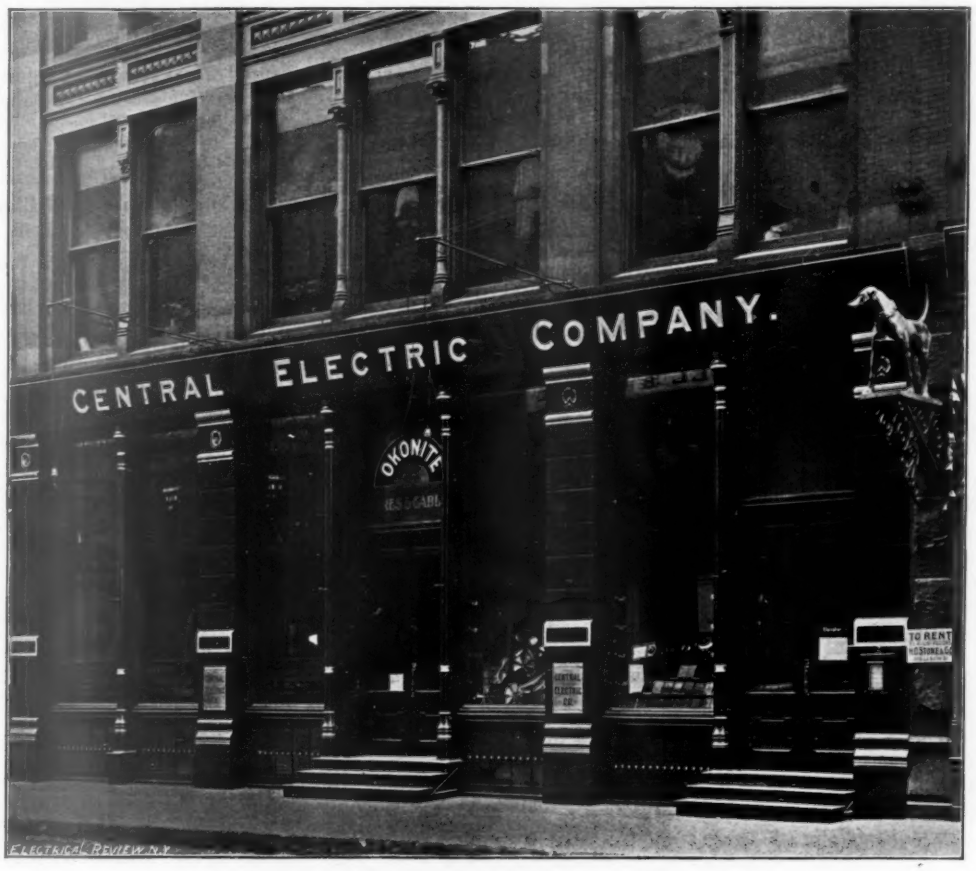


FIG. 5.—FRONT OF CENTRAL ELECTRIC COMPANY'S STORE, CHICAGO.

the conditions under which the highest results may be secured in house wiring, his counters are favorite trading places for local practical electricians.

As fast as orders are entered and approved they are laid on the desk occupied by Mr. F. D. Lempke, and thereafter he is held responsible for further action. Having had an extended experience in the picking up of the thousand and one outside articles that are called for daily, and in comprehending the value of time shipments, more especially where a gang of linemen are idly awaiting the arrival of material, customers may rest assured that in his hands their orders will be well taken care of.

Then there is the motor department, the fixture department, the shipping department, the correspondence department, and last, but not least, the accounting department in charge of Mr. George W. Vernon.

Readers of the ELECTRICAL REVIEW will readily recall the well-known fact that the Southern Electric Supply Company, of St. Louis, and the Gate City Electric Company, of Kansas City, are branches of and controlled exclusively by the Central Electric Company.

Officers of the Indiana Telephone and Construction Company have been elected as follows: Directors, R. B. Campbell, C. O. Scull, J. M. Schryver, Charles Selden, A. H. Johnson, of Baltimore city; Joseph Claybaugh, of Frankfort, Ind.; G. G. Hadley, of Toledo, Ohio. The directors elected: Joseph Claybaugh, president; Charles Selden, first vice-president; E. W. Day, secretary and treasurer.

TELEPHONE NEWS AND COMMENT.

Bell telephone is very bullish in financial circles of Boston.

The Huntington, Ind., council has granted a franchise to the Huntington Telephone Company, requiring that the exchange be operated within six months.

The Eastern Telephone Company, of Brooklyn, N. Y., has had its franchise passed over the Mayor's veto. As yet the company has made no definite announcement of its intentions.

Mrs. Cawker—"Don't you think it is very strange that Mrs. Stivetts hasn't returned my call yet?"

Mr. Cawker—"Not at all. It is merely the result of force of habit."

Mrs. Cawker—"How is that?"

Mr. Cawker—"She was a telephone girl before her marriage."—*Judge.*

FIG. 6.—A CORNER IN THE CENTRAL ELECTRIC COMPANY'S STORE.

J. A. Dawson, manager of the Pennsylvania Telephone Company, Easton, Pa., has been arrested, charged with appropriating about $1,700 of the funds of the company. He was released on $2,000 bail.

A favorable report has been made by the New Orleans City Council on the communication of the Great Southern Telephone Company, offering to erect and maintain a system of telephonic communication connecting the various engine houses in the city with an office equipment, or switchboard, to be located at the city hall, free of charge until January 1, 1895, and from that date, at the rate of $3,000 per year.

The trial of the suit of Maggie Barrett against the Pacific Telephone and Telegraph Company was commenced before Judge Hunt and a jury in San Francisco last week. Miss Barrett wants $5,000 damages because the company one night effected an entrance to her office in the Mills building and removed the telephone. The company's defense is a plea that Miss Barrett was delinquent for a month's rent. The lady ridicules this defense and points out that previous to the month when her telephone was removed she had paid rent regularly for seven years.

The Farmers' Telephone Company is the title of an organization being formed at Massillon, Ohio, backed by the farmers' clubs of Stark County, the ultimate purpose of which is to build a network of country lines, with instruments located two miles apart, and lines radiating from these stations to the homes of subscribing members. The experimental line is to be erected between Massillon and West Lebanon, a distance of nine miles. The shares are $10 each, and the holders are to be put to no other costs, the expectations being that tolls collected of non-subscribers will be sufficient to pay operating expenses. This will be a great scheme, if successful.

FORT WAYNE COMPANY IN RECEIVERS' HANDS.

R. T. M'DONALD APPLIED FOR RECEIVERS—FORT WAYNE ELECTRIC CORPORATION ORGANIZED—IT WILL BE INDEPENDENT OF THE GENERAL ELECTRIC COMPANY.

A special from Fort Wayne, on June 6, said: "This afternoon R. T. McDonald, general manager and a heavy stockholder in the Fort Wayne Electric Company, applied in court here for a receiver for the plant, valued at a half million dollars.

"Supreme Court Judge Dawson appointed H.J. Miller, of Fort Wayne, and E. J. Hawthorne, of Boston, receivers Immediately articles of incorporation of the Fort Wayne Electric Corporation, with a capital of $1,500,000, were filed.

"The movement is sensational, as it is believed McDonald has taken this method of preventing the Electric Trust gobbling the original company."

The *Boston News Bureau*, in its bulletin for June 7, refers to the matter as follows:

In the annual report of the General Electric Company its $1,921,850 holdings of Fort Wayne Electric stock were taken at the nominal value of $1. Total capital of the company is $4,000,000, divided into 190,000 shares of a par value of $25.

Proxies are being solicited to-day in Boston in the interest of the minority stockholders of the Fort Wayne Electric Company.

A party well informed says: "The community is not aware of the importance of the Fort Wayne receivership. If successful it means a new electric company, controlled and managed by the old Thomson-Houston people and to be an active competitor of the General Electric Company.

"Had the latter company been willing to purchase the minority stock at an equitable appraisal instead of using the company in the interest of the greater company this trouble and warfare would not have ensued."

The news of the receivership for the Fort Wayne Electric Company had little or no effect on the stock of the General Electric Company. The company's annual report for the year ending January 31 shows that it owned 76,874 shares of the Fort Wayne Electric. This it inventoried at $1 per share against the then market price of about $3. Since then the price has dropped off to about $2.50.

In electrical circles there have been current for some time rumors of dissension between the two interests, which at one time took the form of an assertion that Fort Wayne Electric was about to withdraw from General Electric. This would have been impossible, for the reason that it was never a part of General Electric, and that the latter was identified with it only as a stock owner, and it controlled the policy only so far as a small minority of the stock would permit. However, it is now believed that there was a basis for the dissatisfaction, and it is openly asserted at this time that the receivership is for the purpose of readjusting relations.

The General Electric Company has obtained an attachment for $500,000 against property in New York State belonging to the Fort Wayne Electric Company. The attachment is for money advanced between May 1, 1892, and May 1, 1894. The attachment was granted by Judge Andrews of the Supreme Court. The General Electric Company, it is said, loaned the money during the last two years of financial depression to keep the Indiana company from going to pieces. The suit has been brought on the loans in order to protect the General Electric Company.

The attachment was issued on June 8, and a server was sent with the papers in a hurry to the Fort Wayne company's office in the Edison building. He wasn't quick enough, for there Mr. Adams, the manager, informed him that on June 6 the Fort Wayne Electric Corporation bought from the receivers the plant, tools and office furniture of the Fort Wayne Electric Company. Mr. Adams held that as it was the property of the new corporation no attachment could be levied upon it. That matter will have to be brought up in the courts, in order to prove whether the sale of the property was a *bona-fide* one. It is claimed that the Fort Wayne Electric Company has no property in New York State.

A sheet of paper on which was written "The Fort Wayne Electric Corporation" had been pasted on the door on the arrival of the official with the attachment. Deputy Sheriff McGinnis served copies of the attachment on the National Broadway Bank, where the company is said to have a small account. The attachment was issued on the affidavit of Joseph P. Ord, second vice-president of the General Electric Company.

On Saturday, June 9, at Fort Wayne, Judge Dawson of the Superior Court, on petition of receivers of the Fort Wayne Electric Company, issued a temporary enjoining and restraining order to prevent the stockholders of the company from holding an annual election that day, and also to enjoin them from attaching property in other States which now legally belongs to the receivers. This is to hold off the half million attachment in New York.

A Boston financial paper printed a rumor last Saturday to the effect that President Coffin is to leave the General Electric Company in a few months and go with the Fort Wayne Electric Corporation. The rumor has not been confirmed.

The Fort Wayne Electric Company is said to have now $1,500,000 of floating debt, notwithstanding it was supposed to have practically gotten out of debt in 1892, when the Fort Wayne Trust Series A was created.

President Coffin, of the General Electric Company, when interviewed on the matter, said:

"The proceeding is taken merely to protect ourselves. The Fort Wayne Company owes us money and we want to get at some of their assets if possible. The Fort Wayne Electric Company were never interested in the General Electric Company, but we owned perhaps half of their capital stock. All we want is the money that is due us. There is no objection to the company doing business on its own hook."

THE NEWS IN FORT WAYNE.

The Fort Wayne, Ind., *Journal* of June 7 gives the local view of the action of the two companies as follows:

The greatest disaster that has threatened Fort Wayne since its inception, 100 years ago, is averted. A movement was on foot to close the Fort Wayne Electric Works and shut 1,200 men out of employment. A pay roll of $20,000 a month was to be stopped. Between us and this calamity stands Mr. Ronald T. McDonald. Arrayed against him is the powerful General Electric Company and the wealth of Wall street. In the face of these stupendous odds—odds that would phase any other man than Mr. McDonald—we predict he will win. This card, published in the *Journal* for a week past, will explain Mr. McDonald's attitude.

STOCKHOLDERS' MEETING.

Notice is hereby given that the annual meeting of the stockholders of the Fort Wayne Electric Company for the election of directors and transaction of other business, will be held at the office of the company in Fort Wayne, Ind., on Saturday, June 9, 1894, at 2 P. M.

BRAINARD RORISON, Secretary.

The electric light interests of the country are controlled mainly by the General Electric Company, and that corporation is owned by eastern capitalists. Holding a controlling stock interest in the Fort Wayne Electric Company the scheme of the eastern fellows was to assume control of the local plant at the annual meeting Saturday next, close it up, shut the men out and transfer the manufacturing business to Schenectady, N. Y., as they have done with other corporations.

Anticipating this movement, Mr. McDonald applied to the Superior Court yesterday for the appointment of receivers for the Fort Wayne works. Mr. Henry J. Miller and Mr. E. J. Hathorne were selected by the court to take charge of and operate the Fort Wayne plant. They qualified and gave bond in the sum of $60,000 for the faithful discharge of their trust, with D. N. Foster, George W. Pixley, R. L. Romy and J. F. William Meyer as sureties.

Simultaneous with the filing of his application for receivers, Mr. McDonald organized and incorporated the Fort Wayne Electric Corporation, capital stock $1,500,000, the first holders being R. T. McDonald, Charles C. Miller, S. C. Lumbard, Charles S. Knight and M. C. Gross.

The corporation has contracted with the receivers to continue the business of the Fort Wayne Electric Company and the contract has been sanctioned by the court.

The assets of the Fort Wayne Electric Company are sufficient to pay all of its debts and leave a considerable surplus for distribution to its stockholders, so that no man will lose a dollar.

The capital of the new company is ample for its purposes, and the arrangements they have made are such that no sacrifice in respect to the assets in the hands of the liquidators will be necessary.

Thus, phœnix-like, rises out of the wreck contemplated by the combine a new company, with a business as broad as the land and branch offices at 44 Broad street, New York; 185 Dearborn street, Chicago; Philadelphia, Pittsburgh, San Francisco, New Orleans, Dallas, Tex.; Syracuse, N. Y.; Portland, Ore.; Columbus, Ohio; City of Mexico, Mexico; Havana, Cuba, and various smaller points, to compete with the General Electric octopus and defy its power.

Mr. McDonald is doing this for Fort Wayne, for the men who subscribed $35,000 when the integrity of the company was threatened some years ago; he is doing it for the 1,200 employés of the works and their families; he is doing it for his fellow-citizens, for his friends and his home, at a time when he could dispose of his interests at his own price and continue with the General Electric Company at his own salary, with headquarters in New York.

A great legal battle is on and in the struggle for the life of the Fort Wayne company Mr. McDonald can rest assured of the sympathy, support and good will of the citizens of Fort Wayne, who are sure to appreciate his loyalty to the metropolis of northern Indiana.

New York Board of Electrical Control.

At the meeting of the Board of Electrical Control last week it was stated that several New York gas companies were laying pipes containing electrical conductors. This is a violation of their contracts with the Subway Commissioners. Mayor Gilroy offered a resolution directing Commissioner of Public Works Daly to make an investigation and have the conductors taken out wherever they are found. The Mayor explained that the gas companies laid their pipes at night, when there was no one to watch them. One of the principal gas companies of the city had been detected laying a gas main in one of the leading avenues for the purpose of putting in an electrical conductor for its own use. There are now electrical conductors in violation of the law in these places: From 36 to 49 and 51 New street; in front of the Edison building; one across Exchange place, between the Consolidated Exchange and Exchange Court, and one from 24 Broad street to the Mills building. One gas company had been discovered laying a conductor in Sixty-fifth street. The Mayor's resolution was passed.

Underground Electric Railway on Lexington Avenue.

The Metropolitan Traction Company has just placed a contract for 15,000 feet of cement-lined pipe with the National Conduit Manufacturing Company, to be used in connection with the mile of underground electric railway which is to be laid as an experimental line on Lexington avenue, New York city. It is understood that the Siemens & Halske system, similar to that used in Buda Pesth at the present time, is to be put down and given a thorough test. If it proves to be successful in this locality it is likely the system will be extended to other parts of the city.

The National Conduit Manufacturing Company has put in over 1,000,000 feet of this conduit for various electrical purposes since the first of January.

Electric Railways as Investments.

H. B. Hollins & Company, New York, are distributing a pamphlet containing data and maps of the principal electric street railways of the country. They express the opinion that the bonds and stocks of electric street railways will rank among the highest class of investment securities as soon as the public becomes fully acquainted with their merits.

Arrangement of Generating Stations For Metropolitan Electric Supply.

Our esteemed contemporary, the *Engineer*, has lately directed its attention to the important question of the best arrangement of generating stations for metropolitan electric supply. It arrives at the conclusion that a large number of detached generating stations, such as now exist, is the least likely method to yield a profitable return for the capital invested, and it bases this conclusion upon a very plausible line of argument. "No one in his senses," it says, "fancies that a gas-works could be constructed near Berkeley Square to supply 60,000 lights which would prove remunerative. Why should an electric light station?" Why, indeed, except that the cases, whilst having something in common, are by no means on all fours. The coal cartage nuisance in the case of electric lighting stations, is, as Mr. Kapp points out, an almost negligible quantity, but in the case of a gas-works it would be a formidable problem. The only way in which an electric lighting station usually offends its neighbors is by setting their dwellings on the wobble; its area of nuisance is concentrated. A gas-works, on the contrary, has an almost indefinite area of nuisance. A paper was recently read before a scientific society on the audibility of Big Ben at Norwood and its connection with the weather. We could wish that its author would investigate in like manner the influence of meteorological conditions on the limits of "smellibility" of a gas-works.

Our contemporary thinks that existing stations should be turned into sub-stations, and that they should be fed from one and the same generating station, situated at some place outside the metropolitan area, a "peripheral station," as Mr. Kapp calls it. The existing companies might even purchase their supply of electrical energy from the owners of this fountain-head, and retail it to their own little coterie of consumers. The main point, though not the only one, upon which our contemporary bases this system of electrical power distribution is the fact that, by supplying power to the entire metropolitan area from a single station, a much better load factor could be obtained than where the area is subdivided into detached and independent districts. One portion of the area would find work for the station in the daytime, another portion in the early evening, and a third portion in the midnight hours.

To properly light the metropolis, 8,000,000 lamps of eight candle-power or their equivalent, would be necessary; and our contemporary estimates that a provision of 200,000 horse-power would be required in order to meet this demand. This figure is based on the assumption that the maximum load on the station is equal to half the lamps wired. In this assumption we cannot concur; for we consider that, in any such comprehensive station as the one proposed, the maximum number of lamps in use at any one time would be very much below one-half of the total lamps wired. Our contemporary forgets that the very principle upon which it proposes to improve the load factor of the station, must directly operate to reduce the ratio of the maximum lamps used to the lamps wired. If the commingling of diverse districts is to considerably improve the one quantity, it must of necessity reduce the other; because it can only operate if different districts, or classes of consumers, are in full action at different times. Now, it is very rarely indeed that existing detached stations experience a load equal to 50 per cent of the total lamps connected. Therefore, it is highly probably that, by the coalescence of several stations, this figure would be considerably lowered.—*London Electrician.*

Electrolysis and Gas Pipes.

At the recent annual meeting of the Western Gas Association at Cleveland, Ohio, a long report was received from the association's Committee on Electrolysis. The findings of the committee are thus summarized:

First. Electrolysis from the grounded currents of electric roads is rapidly injuring gas and water pipes, and it is admitted by street railway people that the injury does proceed from their operations.

Second. Complete relief from its action cannot be reached by any device applicable by those injured, but is attainable by certain changes in the electric railways.

Third. The gas and water interest should unite in demands for remedial measures which shall secure the adoption of systems undoubtedly effective, and which will thereby avoid a revival of the question a few years hence.

Fourth. Pending the discussion or completion of the relieving systems, the pipes should be protected at exposed points, at which the policy of increasing the resistance by insulation should be followed rather than that of increasing the conductivity by wiring.

ELECTRIC LIGHT FLASHES.

Viroqua, Wis., will have an electric light system.

East Troy, Wis., is considering the cost of an electric light plant.

V. Q. Irwin is reported to have refused $25,000 for his electric light plant at Peru, Ind.

An engine and dynamo are to be purchased for a plant to light the Brockton, Mass., city hall.

The Poughkeepsie, N. Y., Electric Light Company will rebuild the quarters occupied by its plant on Winnikee avenue.

A large crew are working on a new electric light station below the old one at Norway, Me., so as to give room for other manufactories and have sufficient water power for both.

The St. Louis, Mo., Subway Commission has decided not to consider the proposition of purchasing the conduit and franchises belonging to the St. Louis Underground Wire Company.

City Engineer Keating, of Toronto, Ont., having made an extended investigation into the question of civic lighting, announces it as his conclusion that Toronto should erect and operate her own electric light plant.

The Chicago Edison Company's annual report is expected to show a net surplus after the payment of dividends of $253,000. There has been an increase in the lighting field, but not in the electric power department.

The works of the Warren, Pa., Gas Light Company and the Electric Light Company were destroyed by fire on May 27. The fire was caused by an explosion in the gas-works. Both plants will be rebuilt at once. Loss $6,000. No insurance.

The Denver, Colo., County Commissioners have decided to establish electric light plants in the court house and county jail. It is reported that the General Electric Company will get the contract for the court house plant and the Standard Electric Company that for the jail.

A party of city officials from Springfield, Ill., was recently in Cleveland to inspect the Brush Electric Company's plant. The residents of the capital of the Sucker State want to establish a municipal lighting plant and do away with the contract system, and the officials are on a tour of inspection, looking into the feasibility of the plan and the cost and make-up of such a plant.

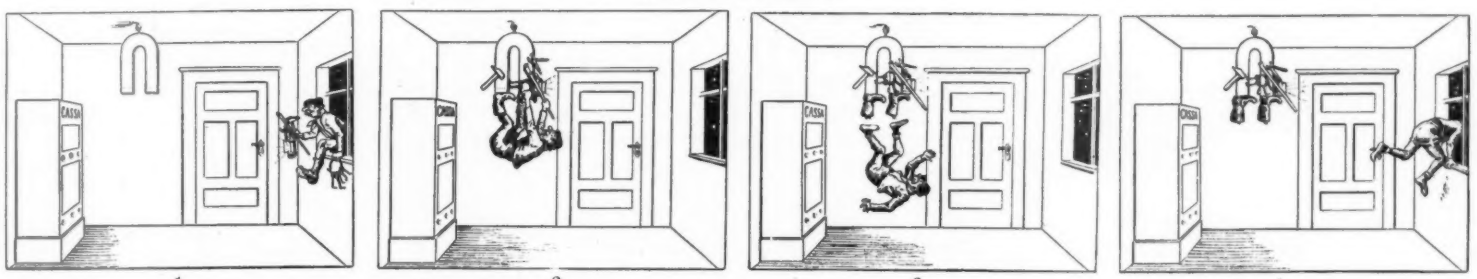
In the United States Circuit Court at Philadelphia, on May 29, Judge Dallas granted the Edison Electric Light Company injunctions, restraining the following defendants from using incandescent lamps containing infringements on the Edison patents: The Land Title and Trust Company, Joseph Morwitz, the Orinoka Mills, University of Pennsylvania, Folwell Bros. & Company, Morris, Tasker & Company, Harrison Bros. & Company, Bergner & Engel Brewing Company and the Philadelphia Market Company.

A novel scheme of electric lighting is about to be carried out in Antwerp. Water is to be distributed from steam pumping stations, at a pressure of 775 pounds per square inch, and used to drive dynamos in small district stations by means of turbines. These are to supply the local consumers through a low pressure, two-wire circuit system. It is figured out that the cost of coal per 16 candle-power per hour will be only two and one-half cents.

The rivalry between the Milwaukee Arc Light Company and the Badger Illuminating Company has culminated in a lawsuit. The complaint alleges that the arc light company had a large number of wires strung over a vacant lot, the lines furnishing all the large mercantile houses on West Water street with electricity for their lights. It is claimed that at the instance of the Badger Illuminating Company a young lawyer named Moritz Weil rented the ground for 30 days. No sooner had the lot been rented, it is said, than the Badger company sent a large force of men to the place and caused all the wires strung overhead to be torn down. It is assumed that the Badger company took the action it did on the ground that a property owner can legally remove any objects extending over the premises.

A MAGNETIC SAFEGUARD AGAINST THIEVES.

[*From Fliegende Blätter.*]



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Storage Battery Suit.

The argument on the motion of the Consolidated Electric Storage Company against the Electric Storage Battery Company, manufacturers of the Chloride battery, for a preliminary injunction, was brought to a close on the 7th inst. before Judge Green in the United States Circuit Court, at Trenton, N. J.

Quick Cabling.

The result of the Derby race was received by the United Press from the office of the Direct United States Cable Company at 10.22.15 o'clock on the day of the race, just one second after it was filed in London.

ELECTRICAL PATENTS

INDEX OF INVENTIONS FOR WHICH LETTERS PATENTS OF THE UNITED STATES WERE ISSUED ON MAY 29, 1894.

520,403 System of car lighting or heating; Craig R. Arnold, Sharon Hill, Pa.

520,406 Magneto telephone; Arthur F. Boardman, Somn erville, assignor of one-half to James D. Leatherbee, Braintree, Mass.

520,412 Insulator; Chauncy E. Conover, Cincinnati, Ohio.

520,427 Circuit closer; Geo. W. Hey, Syracuse, N. Y.

520,429 Electric battery; Samuel Hoggson, St. Louis, Mo., assignor of one-half to William H. Stevenson, same place.

520,445 Electric cigar lighter. 520,446 Electrically illuminated clock; David Misell, New York, N. Y., assignor to Nathaniel S. Rosenau, same place.

520,467 Speaking attachment for telephones; William Weber, Philadelphia, Pa., assignor of one-half to Geo. Weber, same place.

520,474 Switch; Henry P. Ball, Bridgeport, Conn.

520,510 Electric cattle guard; David H. Wilson, Chicago, Ill.

520,520 Safety system for railroads; William H. Elkins, Cambridge, Mass.

520,527 Electric railway turn-table; Rudolph M. Hunter, Philadelphia, Pa.

520,543 Testing system for multiple switchboards; Chas. E. Scribner, Chicago, Ill., assignor to the Western Electric Company, same place.

520,585 Electric clock striking mechanism; Charles D. Warner, Ansonia, Conn.

520,614 Element for secondary batteries; Sigmund A. Rosenthal and Villeroy C. Doubleday, London, England.

520,620 Alternating current motor; William Stanley, Jr., Pittsfield, Mass., assignor to the Stanley Laboratory, same place.

520,661 Electric railway signal. 520,710 Electric railway signal; Charles Selden and Henry V. Riley, Ba timore, Md., said Riley assignor of one-fourth to said Selden.

520,664 Pneumatic transmitter or store service; Chas. O. Yale, New York, N. Y., and John H. Ames, St. Paul, Minn.

520,673 Therapeutic electrode; William B. Farrar, Greensborough, N. C., assignor of one-half to Obed W. Car, same place.

520,722 Electric pump motor; John F. Blake, New Haven, Conn.

520,737 Trolley wire support; Budd J. Jones, Sioux City, Iowa.

520,748 Method of operating electric motors; John S. Bancroft, Philadelphia, Pa., assigned to the William Sellers Company, incorporated, same place.

520,758 Conduit railway trolley; William Lawrence.

DESIGNS

23,322 Electric wire fastening; Harvey Hubbell, Bridgeport, Conn.

PATENTS EXPIRING MAY 29, 1894.

191,339 Splicing fence and telegraph wires; W. B. Hayden, Columbus, O.

191,432 Pneumo-electric baths; Wm. D. Huffman and Sanford W. Huff, Sigourney, Iowa.

191,439 Quadruplex telegraphs. 191,440 Quadruplex telegraph; F. W. Jones, Chicago, Ills.

191,464 Copying telegraphs; Loring Pickering, San Francisco, Cal.

191,478 Electro-magnetic motors. 191,479 Printing telegraphs; R. J. Sheehy, Boston, Mass.

PATENTS ISSUED JUNE 5, 1894.

520,763 Multiphase current motor. 520,764 Method of and means for starting alternating current motors; Louis Bell, Boston, Mass., assignor to the General Electric Company, of New York.

520,772 Fuse box; Axel Ekstrom, Lynn, Mass., assignor to the General Electric Company, of New York.

520,773 Armature for dynamo-electric machines; Herman F. F. Erben, Schenectady, N. Y., assignor to the General Electric Company, Boston, Mass.

520,776 Lightning arrester; John W. Gibboney, Lynn, assignor to the General Electric Company, Boston, Mass.

520,780 Electric motor truck; John C. Henry, Westfield, N. J.

520,781 Dynamo-electric machine; Albert B. Herrick, Schenectady N. Y., assignor to the General Electric Company, Boston, Mass.

520,782 Electric motor; Alfred Hinman, Olympia, Wash.

520,784 Electric motor controller; Wm. J. Hopkins and Theodore Stebbins, Boston, Mass., assignors to the Thomson-Houston Electric Company of Conn.

520,786 Ear-pad for telephone receivers; James W. Kinniburgh, Wellington, New Zealand.

520,787 Electric locomotive; Walter H. Knight, Lynn, assignor to the General Electric Company, Boston, Mass.

520,788 Stand for controlling electric circuits; Edward R. Knowles, Middletown, Conn., and Edwin H. Park, Millbury, Mass., assignors to the Schuyler Electric Company of Conn.

520,788 Voltmeter. 520,852 Electric switch-box. 520,963 Ammeter. 520,964 Voltmeter; Edward R. Knowles, Middletown, Conn., assignor to the Schuyler Electric Company of Conn.

520,794 Electric elevator; William D. Lutz, Philadelphia, Pa.

520,795 Electro-protective system for locks; Morris Martin Malden, assignor of one-half to Benjamin W. Wells, Boston, Mass.

520,798 Ingot charging apparatus; Thomas R. Morgan, Sr., and William H. Morgan, Alliance, Ohio, assignors of one-half to Thomas R. Morgan, Jr., and John R. Morgan, same place.

520,800 Alternating current motor; Olof Offre Middletown, Conn., assignor to the Schuyler Electric Company, of Conn.

520,809 Means for preventing arcing in electric power stations. 520,810 Electric reciprocating motor; Elihu Thomson, Swampscott, Mass., assignor to the Thomson-Houston Electric Company of Conn.

520,811 Electric meter; Elihu Thomson, Swampscott, Mass.

520,822 System of circuit control for electric machines; Charles E Davis, Chicago, Ill., assignor to John H. Leslie, same place.

520,855 Feed wire insulator; Chas. A. Lieb, New York, N. Y., assignor to the General Electric Company, of Boston, Mass.

520,894 Sound recording and reproducing attachment for key instruments; Carl W. Nystrom, Carlstad, Sweden.

520,895 Womb; Julius C. Petit, Fort Worth, Tex.

520,908 Electric circuit regulator; Harry F. Waite, New York, N. Y.

520,926 Lever controlling device; Arthur H. Johnson, Rahway, N. J.

520,937 Trolley wire support; Louis McCarthy, Boston, Mass.

520,938 Closed conduit for electric railways; Paul Plodeck, Sr, Cleveland, O.

520,940 Dynamo electric machinery; Coleman Sellers, Philadelphia, Pa.

520,965 System of electrical distribution; Benjamin G. Lamme, Pittsburgh, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place.

520,970 Method of economizing the energy of alternating currents; Chas. F. Scott, Pittsburgh, Pa., assig or to the Westinghouse Electric and Manufacturing Company, same place.

520,971 Electric railway overhead switch; Miller A. Smith, Brooklyn, and William Alabaugh, New York, assignors to the New York Electrical Works, New York, N. Y.

520,973 Trolley; Edgar M. Tousley, Jamestown, N. Y.

520,975 Converter system for electric railways; Geo. Westinghouse, Jr., and Charles F. Scott, Pittsburgh, Pa.

520,981 Electrotype block; William T. Barnum, New Haven, Conn.

520,991 Electric arc lamp; Louis E. Howard, Plainfield, N. J.

520,996 Electric arc lamp; Louis B. Marks, New York, N. Y., and Clarence Ransom, Passaic, N. J.

521,010 Conduit electric railway system; James Brand, Milwaukee, Wis.

521,018 Connection for electric wires; James Y. De Mott, Newark, N. J.

521,046 Electrical annunciator; Fred. W. Ross, Boston, Mass., assignor to the Electric Gas Lighting Company, of Maine.

521,051 System of electrical distribution by alternating currents; Chas. F. Scott, Pittsburgh, Pa.

521,065 Electric alarm clock; John S. Whitehead, Detroit, Mich.

521,085 Electrical governor for water wheels; Carl S. English, Lowell, Mich., assignor of one-half to Charles A. Church and Otto C. McDonnell, same place.

521,089 Electric meter; Warren B. Reed, New Orleans, La.

521,099 Electric heating apparatus; Geo. D. Burton, Boston, Mass.

521,124 Section insulator; Henry B. Nichols and Frederick H. Lincoln, Philadelphia, Pa.

521,125 Electric subway; James J. E. Philips, Brooklyn, N. Y., assignor to the Empire City Subway Company, Limited.

521,131 Incandescent lamp; Detlef C. Voss, Boston.

521,138 Electric motor for dental engine; Walter A. Crowdus, Chicago, Ill., assignor to the Turney Electric Manufacturing Company, same place.

521,144 Annunciator; Thomas J. Thomson, Chicago, Ill., assignor to Julian M. McDermid.

DESIGNS.

23,329 Lamp stand; William S. Gray, Bristol, Conn.

23,339 Radiator; James F. McElroy, Albany, N. Y.

ADVANCE INFORMATION.

VALUABLE INFORMATION FOR MANUFACTURERS AND DEALERS.

We publish below the earliest information obtainable relating to new electric railways, new electric light companies, new telephone companies and projected electric construction of all kinds. Every reader will find these columns of special interest, and manufacturers and supply houses will receive many valuable suggestions looking to new business by carefully watching this department in the ELECTRICAL REVIEW from week to week.

New Electric Railways.

SIOUX CITY, NEB.—The Sioux City Traction Company with a capital of $1,000,000 has been organized to succeed the Sioux City Street Railway Company in the ownership and operation of 40 miles of electric street railway. C. L. Wright, E. H. Stone and J. C. French, of Sioux City, and M. L. Kohler and G. W. Homer, of Philadelphia, are the directors and corporators.

NEW ORLEANS, LA.—The Orleans Street Railway Company, Peter Cougout, president, will hold stockholders' meeting on June 16 to act on proposition to change its line to electric power.

TAMPA, FLA.—W. H. Hendrick and R. N. Ensley are organizing a $25,000 company who intend building an electrical railway from Ybor City to Talm Beach.

BROOKSVILLE, KY.—Y. Alexander, cashier Bracken County Bank, is interested in a project to build an electrical railroad through the Chesapeake and Ohio Railroad, a distance of seven miles.

RICHMOND, VA.—Virginia Electric and Railroad Company is trying to obtain a franchise to build an electric road to Chimborazo Park.

HONESDALE, PA.—The Honesdale Electric Railway Company, incorporated; capital, $100 000.

GARDNER, MASS.—Gardner Electric Street Railway Company, incorporated; capital, $50,000.

GOSHEN, IND.—Indiana Electric Railway Company, incorporated; capital, $25,000.

KANSAS CITY, KANS.—Quindaro Park Electric Railway Company, incorporated; capital, $200,000.

LOS ANGELES, CAL.—The Los Angeles, Passadena and Altadena Railway Company; capital, $1,000,000. To build and operate an electric line between the points mentioned. Incorporated by G. G. Green, of Woodbury, N. J.; Andrew McNally, Chicago; Colin P. Stewart, of Baltimore; George H. Barker, of Philadelphia and others.

Electric Light and Power.

HOUSTON, TEX.—Address Hon. J. T. Browne, Mayor, concerning electric lighting contract.

EVART, MICH.—Address Irwin Chase, City Clerk, concerning the proposed erection of an electric light plant.

BRUNSWICK, MO.—Address W. H. Finch, City Clerk, concerning the proposed construction of an electric light plant.

ST. LOUIS, MO.—The Bellefontaine Electric Railway Company is to enlarge its power plant by erecting a $5,000 building.

EL PASO, CAL.—J. R. Perry can give information concerning electric lighting system to be established.

FREDONIA, N. Y.—The Fredonia Electric Light, Heat and Power Company will shortly erect a new incandescent electric lighting plant.

SHELBYVILLE, KY.—Shelbyville Water and Electric Light Company has been organized with a capital of $40,000, with Louis Channing as president.

LITTLE ROCK, ARK.—The Suburban Electric Light and Power Company, incorporated; capital, $50,000.

SAN FRANCISCO, CAL.—New Electric Power and Light Company, incorporated; capital, $10,000,000.

CLEAR LAKE, IA.—The Clear Lake Electric Light and Power Company has been incorporated and has received an exclusive 20 year franchise. The company will do the street lighting. Address John L. Etzel, president.

PARIS, TENN.—The Mayor can give information concerning $40,000 worth of bonds, recently reported, for the establishment of an electric light plant.

WATER VALLEY, MISS.—The Water Valley Electric Light and Power Company, incorporated; ca ital, $10,000.

BUCKSPORT, ME.—Bucksport Light and Power Company, incorporated; capital, $10,000. Furnishing electric light.

LANCASTER, PA.—The Citizens' Electric Light, Heat and Power Company has been organized with a capital of $100,000. The stockholders, who also comprise the board of directors, are as follows: J. L. Steinmetz, Charles H. Locher, Gustave Groezinger, Prof. J. E. Kershner, Allan A. Herr, Philip Lebzelter, S. R. Moss.

New Telephone and Telegraph Companies.

NEW LONDON, OHIO.—The Harrison Telephone Company, incorporated; capital, $1,000.

COSHOCTON, OHIO.—The Coshocton Telephone Company, incorporated; capital, $10,000.

BELLEVUE, OHIO.—The Bellevue Mutual Telephone Company, incorporated; capital, $12,000.

EAST AURORA, N. Y.—Buffalo Valley Telephone Company, care of F. R. Whaley, incorporated; capital, $2,000.

SALISBURY, MD.—Salisbury Telephone Company has been organized with A. J. Benjamin as president; L. W. Gunby, vice-president; and J. D. Williams as secretary and treasurer. The company will establish a telephone system which is to be extended later on to neighboring towns.

ALVIN, TEX.—The telephone line is projected to Angleton, Velasco and Brazoria. The Brazoria County Abstract Company, of Brazoria, is said to be interested.

CHICAGO, ILL.—Pratt Telephone Company, incorporated; capital, $200,000.

GREENPORT, N. Y.—Montauk, Orient and New York Telephone and Telegraph Company; capital, $5,000.

MARION, VA.—Marion Telephone Exchange, incorporated; capital, $5,000.

LITTLE ROCK, ARK.—A company is applying for right of way to construct telephone line from Little Rock to Fort Smith, Ark.

CAMDEN, N. J.—Mutual Automatic Telephone Company, incorporated; capital, $200,000. Constructing and operating electric telephones.

CINCINNATI, OHIO.—The Electric Telephone Construction Company, incorporated; capital, $10,000.

CHICAGO, ILL.—The Groff Telephone Company, incorporated; capital, $1,000,000. Manufacturing magnetic and electric telephones, etc.

MONROE, CITY, MO.—Monroe City Telephone Company, incorporated; capital, $3,000.

MONTEREY, VA.—Monterey & Staunton Telephone Company, incorporated; capital, $5,000.

Business Troubles.

NEW YORK CITY.—James J. Nealis has been appointed receiver of the La Burt Automatic Electric Block Signal System and Car Coupler Company, whose office was at 203 Broadway, on the application of Asa J Stott, a judgment creditor for $341. The company was organized two years ago under West Virginia laws, and capitalized at $5,000,000.

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